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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,405	02/12/2004	Nathaniel S. Fox	04017.00066	9728
22908	7590	08/29/2006	EXAMINER	
BANNER & WITCOFF, LTD. TEN SOUTH WACKER DRIVE SUITE 3000 CHICAGO, IL 60606			MAYO, TARA L	
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			3671	

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/728,405	<b>Applicant(s)</b> FOX, NATHANIEL S.	
	<b>Examiner</b> Tara L. Mayo	<b>Art Unit</b> 3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 60-85 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 60-85 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 June 2006 has been entered.

### ***Claim Objections***

2. The prior objection to claim 61 has been overcome by the response filed 19 June 2006.
3. Claim 73 is objected to under 37 CFR 1.126 for not being properly numbered. For the purpose of prosecution on the merits, it has been considered identical to claim 73 previously presented in the amendment filed 27 December 2005.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 72 through 74 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

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was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Specification as originally filed fails to provide support for a sacrificial cap comprising a transaxial plate member and a rod member extending from the plate member into the hollow tube. Specifically, Applicant shows the sacrificial cap embodiment of the claimed invention in Figures 8A through 8C, 16 and 23 and discloses the same as being used in lieu of a sliding valve and a transaxial plate and rod. See the Specification at paragraphs 29, 30, 62 and 66.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 72 through 75 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 72, the scope of the claimed invention is indefinite because it is unclear how a sacrificial cap can be attached to a rod member.

With regard to claim 75, it is unclear how the head element and the hollow tube can have a uniform cylindrical cross section and be frustoconically shaped. For the purpose of prosecution on the merits, the Examiner has interpreted the recitation to mean cylindrical.

8. The prior rejections of claim 63 under 35 USC §112, second paragraph has been overcome by the response filed 19 June 2006.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 60, 61 and 75 through 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Visconti (U.S. Patent No. 5,152,639).

Visconti '639, as seen in Figures 1, 2, and 3 through 5, shows an apparatus (10) for construction of a soil reinforcement member in a soil matrix comprising, in combination:  
with regard to claim 60,

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a tube (11) with a first outside diameter;

a unitary bottom head element (15) at the open discharge end having a second outside surface diameter greater than the first outside diameter and configured to provide a combination of axial and transaxial stress components (i.e., downwardly and outwardly via the walls of the head element) and further including an opening and closing mechanism (13 and 14, in combination), said head element including a top end having generally frustonical configuration; and

a sacrificial head element (12);

with regard to claim 61,

a tube (11) with a first outside diameter;

a unitary bottom head element (15) at the end of the tube having a second outside surface diameter greater than the first outside diameter and configured to provide a combination of axial and transaxial stress components (i.e., downwardly and outwardly via the walls of the head element) and further including an opening and closing mechanism (13 and 14, in combination); and

with regard to 75,

wherein the head element and hollow tube have a uniform cylindrical cross sectional profile; and

with regard to claim 76,

a tube (11) and a bottom head element (15); and

a closure mechanism (13 and 14, in combination).

Visconti '639 fails to teach:  
with regard to claims 60, 61 and 76,  
the bottom end of the head element including a generally frustoconical configuration; and  
with regard to claims 77 through 85,  
the dimensions as recited in each of the claims.

With regard to claims 60, 61 and 76, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the bottom end of the head element shown by Visconti '639 such that it would comprise a generally frustoconical configuration, since it has been held that the configuration of a claimed device is a matter of choice which a person of ordinary skill in the art would find obvious absent persuasive evidence that the particular configuration is significant. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) The motivation would have been to better facilitate entry of the apparatus into the soil.

With regard to claims 77 through 85, Applicant has not shown that the particular dimensions recited in the claims are critical or provide an unexpected result. As such, the limitations are met by the device shown by Visconti '639, as modified above, which is capable of being manufactured to the claimed dimensions. *In re Woodruff*, 919 F.2d 15275, 16 USPQ2d 1934 (Fed. Cir. 1990).

12. Claims 62 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Visconti (U.S. Patent No. 5,152,639) in view of Ogawa (U.S. Patent No. 3,772,892) and Pao Chen (U.S. Patent No. 3,869,869).

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Visconti '639 fails to teach:

with regard to claim 62,

a fluid feed mechanism and a solid material feed mechanism; and

with regard to claim 65,

a hopper and at least one auxiliary feed tube.

Ogawa '892, as seen in Figure 1, discloses an apparatus for constructing a pier in a soil matrix comprising:

an elongate hollow tube (1) having a longitudinal axis, a top material entrance end (2), an open bottom material discharge end;

a solid material feed mechanism (3) for feeding aggregate material into the hollow tube entrance end; and

a hopper feed mechanism (3) connected to the top material entrance end of the hollow tube.

Pao Chen '869, as seen in Figures 1 and 2, discloses a device for casting cement-sand grout piles in a soil matrix (13), the device comprising a hollow tube (1) and a shaped bottom head element/valve device (4) comprising the open discharge end configured to provide axial and transaxial stress components onto the soil matrix, wherein the bottom head element/valve device is attached to the hollow tube and includes a mechanism (5) having a beveled external surface for closing and opening the discharge end of the hollow tube; the device further including at least one auxiliary feed tube (10) connected to the hollow tube through an opening



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in the hollow tube end for feeding cementitious grout (col. 3, lines 10 through 13) into the lower end of the hollow tube, wherein the fluid feed tube includes means (11) for selectively opening and closing the fluid feed tube.

With regard to claims 62 and 65, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Visconti '639 with a solid feed mechanism or hopper as taught by Ogawa '892. The motivation would have been to provide means with which to feed aggregates to the tube.

With regard to claims 62 and 65, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Visconti '639 with a fluid feed mechanism or auxiliary tube as taught by Pao Chen '869. The motivation would have been to supply an additional, fluid material to the tube for discharge with the aggregate into the soil matrix.

13. Claims 63, 67 and 69 through 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Visconti (U.S. Patent No. 5,152,639) in view of Ogawa (U.S. Patent No. 3,772,892).

Visconti '639 further teaches:

with regard to claim 63,

the tube being circular.

Visconti '639 fails to teach:

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with regard to claim 63,

an aggregate feed mechanism;

the internal diameter of the tube being at least about four times the maximum size dimension of the aggregate in the tube;

with regard to claim 67,

a hopper;

with regard to claims 69 through 71,

a force mechanism.

Ogawa '892, as seen in Figure 1, discloses an apparatus for constructing a pier in a soil matrix comprising:

an elongate hollow tube (1) having a longitudinal axis, a top material entrance end (2), an open bottom material discharge end;

a solid material feed mechanism (3) for feeding aggregate material into the hollow tube entrance end; and

a hopper feed mechanism (3) connected to the top material entrance end of the hollow tube;

further including a force mechanism (2) connected to the hollow tube for providing a downwardly direct static axial force (via the still weight of element 2); and

a force mechanism (2) for providing an optional force on the hollow tube, the force being a vertically reciprocating force or a vertically vibrating dynamic axial force (col. 3, lines 42 through 49).

With regard to claims 63 and 67, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Visconti '639 with a solid feed mechanism or hopper as taught by Ogawa '892. The motivation would have been to provide means with which to feed aggregates to the tube.

With further regard to claim 63, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the internal diameter of the tube of the device shown by Ogawa '892 no smaller than at least four times the maximum size dimension of the largest item of aggregate material. The motivation would have been to prevent clogging of the hopper during use.

With regard to claims 69 through 71, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device taught by Visconti '639 such that it would further include a force mechanism as taught by Ogawa '892. The motivation would have been to facilitate insertion of the tube into the soil matrix.

14. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Visconti (U.S. Patent No. 5,152,639) in view of Pao Chen (U.S. Patent No. 3,869,869).

Visconti '639 fails to teach:

with regard to claim 64,

at least one auxiliary feed tube connected to the hollow tube through openings in the hollow tube.

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Pao Chen '869, as seen in Figures 1 and 2, discloses a device for casting cement-sand grout piles in a soil matrix (13), the device comprising a hollow tube (1) and a shaped bottom head element/valve device (4) comprising the open discharge end configured to provide axial and transaxial stress components onto the soil matrix, wherein the bottom head element/valve device is attached to the hollow tube and includes a mechanism (5) having a beveled external surface for closing and opening the discharge end of the hollow tube; the device further including at least one auxiliary feed tube (10) connected to the hollow tube through an opening in the hollow tube end for feeding cementitious grout (col. 3, lines 10 through 13) into the lower end of the hollow tube, wherein the fluid feed tube includes means (11) for selectively opening and closing the fluid feed tube.

With regard to claim 64, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Visconti '639 with a fluid feed mechanism or auxiliary tube as taught by Pao Chen '869. The motivation would have been to supply an additional, fluid material to the tube for discharge with the aggregate into the soil matrix.

15. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Visconti (U.S. Patent No. 5,152,639) in view of Colle (U.S. Patent No. 3,270,511).

Visconti '639 fails to teach:

with regard to claim 66,

passageway openings in the hollow tube above the bottom head element for fluid materials within the hollow tube to flow out of the hollow tube above the bottom head element and outside of the hollow tube into an annulus formed between the hollow tube and the soil matrix.

Colle '511, as seen in Figures 4 and 5, discloses a method for forming structural members (90) in the ground comprising the step of discharging fluid materials from a hollow tube (80) into an annulus through openings (84) positioned above a head element (82).

With regard to claim 66, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Visconti '639 such that it would include openings as taught by Colle '511. The motivation would have been to discharge material radially from the tube.

16. Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Visconti (U.S. Patent No. 5,152,639) in view of Ogawa (U.S. Patent No. 3,772,892) and Kato et al. (U.S. Patent No. 6,540,443 B2).

Visconti '639 fails to teach:  
with regard to claim 68,

a hopper and at least one isolation damper connecting the hopper to the hollow tube.

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Ogawa '892, as seen in Figure 1, discloses an apparatus for constructing a pier in a soil matrix comprising:

an elongate hollow tube (1) having a longitudinal axis, a top material entrance end (2), an open bottom material discharge end;

a solid material feed mechanism (3) for feeding aggregate material into the hollow tube entrance end; and

a hopper feed mechanism (3) connected to the top material entrance end of the hollow tube.

With regard to claim 68, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Visconti '639 with a solid feed mechanism or hopper as taught by Ogawa '892. The motivation would have been to provide means with which to feed aggregates to the tube.

Kato et al. '443, as seen in Figure 2, show a ground-boring system (1) including a damper (123) for absorbing shocks during operation and preventing damage to the system (col. 6, lines 1 through 6).

With regard to claim 68, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device shown by Visconti '639 such that it would include a damper, as taught by Kato et al. '443, between the hopper and the hollow tube for absorbing shocks and preventing damage to the hopper.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tara L. Mayo whose telephone number is 571-272-6992. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on 571-272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

tlm  
18 August 2006

  
**TARA L MAYO**  
**PATENT EXAMINER**